UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/804,244	03/13/2001	Motoyuki Kato	G5030.0027/P027	9167

			EXAMINER
24998	7590	01/17/2006	RUTTEN, JAMES D

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ART UNIT	PAPER NUMBER
2192	

DATE MAILED: 01/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
	09/804,244	KATO ET AL.
Office Action Summary	Examiner	Art Unit	
	J. Derek Rutten	2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>25 October 2005</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,11-13 and 15-19* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,11-13 and 15-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1.   Acknowledgement is made of Applicant's amendment dated 25 October 2005,

responding to the 26 July 2004 Office action provided in the rejection of claims 1-5, 11-13, and

15-19, wherein claims 1 and 2 have been amended. Claims 1-5, 11-13, and 15-19 remain

pending in the application and have been fully considered by the examiner.

Response to Arguments

2.   Applicant essentially argues (see page 7, third block of text) that Tock (U.S. Patent

5,815,718) does not disclose, teach or suggest the act of "storing result data of said resolved

reference linking to said program in a code entry representing an instruction to be executed when

the program is executed." New claim language appears to create issues regarding U.S.C. 112,

first paragraph as discussed below. Therefore, this argument is moot.

3.   It is noted that Applicant's arguments (page 7) regarding the Tock reference continue to

focus on the "non-quick" format of the instructions, which provide symbolic references that

require subsequent resolution. However, as cited below and in the previous Office action, Tock

also discloses a "quick" format that provides a direct reference to the method. This quick format

therefor provides for the storage of resolved reference data.

4.   Applicant argues (See page 7, bottom of third block of text) that Tock fails to disclose "at

least one link to another code entry associated with the instruction". This argument is

convincing. However, after further consideration, a new rejection is made in view of the

"Background of the Invention" section appearing on pages 1-8 of the originally filed

specification.

Claim Rejections - 35 USC § 112

5.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6.   Claims 1-5, 11-13, and 15-19 are rejected under 35 U.S.C. 112, first paragraph, as failing

to comply with the written description requirement. The claim(s) contains subject matter which

was not described in the specification in such a way as to reasonably convey to one skilled in the

relevant art that the inventor(s), at the time the application was filed, had possession of the

claimed invention.

Independent claim 1 recites: "storing result data of said resolved reference linking to said

program in **a code entry representing an instruction** to be executed when the program is

executed" (emphasis added). Use of the word "representing" in the amended claim requires

interpretation of the "code entry" to refer to the "assembler statement" as depicted in FIG. 2,

element 10. Code entries appearing in the constant table can not represent instructions, since

they are representations of data. However, this raises issues with 35 U.S.C. § 112, first

paragraph since there does not appear to be support for the storage of result data in such an

assembler statement as appearing in lines 8 and 9 of claim 1. Rather, the resolved references

appear to be stored in the constant pool itself, as depicted in FIG. 2, and as described in the

originally filed specification on page 15 lines 12-19. Note the third box in each on constant pool

entries 1 and 6 which correspond to "RESOLVED CLASS TABLE INDEX" and "RESOLVED

FIELD TABLE INDEX", respectively. These constant pool entries do not represent instructions,

but rather represent data.

Independent claim 2 contains limitations that are similar to claim 1, and is rejected for the

reasons as set forth above. Claims 3-5, 11-13, and 15-19 are rejected as being dependent upon a

rejected base claim.

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

8.   Claims 1-5, 11-13, and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable

over prior art of record U.S. Patent 5,815,718 to Tock (hereinafter referred to as "Tock") in view

of prior art of record U.S. Patent 6,338,160 to Patel et al. (hereinafter "Patel") in view of the

"Background of the Invention" section appearing on pages 1-8 of the originally filed

specification (hereinafter "BOTI").

As per claim 1, Tock discloses:

A program executing method to execute a program written in an interpreter

language - See Abstract, lines 1-5:

A **method** and system for providing an **executable module** having an address space for storing program data that is to reside in a read-only storage medium and an address space for storing program data that is to reside in a random access memory is herein described.

comprising the steps of:

extracting reference data comprising a first and second reference data, said

reference data is used for specifying a location to be accessed in a memory, and

resolving a reference using said reference data – See column 5 lines 56-60:

The object module is then transmitted to the linker 136 which **generates a memory layout** for the classes in the application. Once the memory layout is determined, the linker 136 **resolves all symbolic references** and replaces them with **direct addresses**.

said first reference data comprising ... a resolved class related reference data and said

second reference data comprising a resolved field related reference data – See column 7

lines 45-52:

A **first entry contains the name of the class** and the name of the superclass 502. These names are stored as string constants and the first entry contains pointers to the locations of these strings in the constant pool. **The next entry pertains to the fields** or instance variables. A header 504 is used to denote the number of fields in the constant pool. The various fields 506 follow the header.

Further, see element 636 in FIG. 6, which shows an index into a resolved field block

implemented using a pointer.

storing result data of said resolved reference linking to said program in a code

entry ~~representing~~ <specified by> an instruction to be executed when the program is

executed,⸤...., said two steps of extracting and storing being executed before said program

is executed Newly amended claim language has replaced the phrase "the code entry

specified by the instruction" with "a code entry representing an instruction". However,

as indicated above, this language is not supported by the originally filed specification.

Therefore, the previous language "specified by" is used to provide an interpretation of the

claim. See column 3 lines 19-22, column 5 lines 58-60, 65-67, and column 8 lines 8-13:

> A browser partitioned in this manner can be **initially stored in the read-only memory** of the client computer. When the system powers on, the second address space is preloaded into the RAM.
> …
> Once the memory layout is determined, the linker 136 **resolves all symbolic references and replaces them with direct addresses.**
> …
> The output from the linker 136 is a **preloadable executable module** 306 containing the methods and data for these two address spaces.
> …
> Once the linker has determined the memory layout for the classes, the linker replaces the non-quick format of the invoke method instruction by the quick format which directly references the method (i.e., by storing the method's address). By resolving the symbolic reference, the method can be preloaded.

Comment: The executable module output from the linker contains the result data of the

resolved reference. A code entry specified by an instruction that previously held a

symbolic reference would then contain result data of a resolved reference. This module is

executed only after the steps of extracting, resolving, and storing as referenced above.);

and

> *specifying a location in said memory to be accessed based on said result data of*

said resolved reference linking to said program through said reference data, when said

program is executed which requires access to said memory – See column 2 lines 7-11:

> By **executing** a large portion of the browser from read-only memory, the browser has additional RAM storage to store information-content and executable modules that it can obtain from other server computers that the client is in communication with.

Comment: In this passage, Tock executes an application built using the result data

obtained via the above mentioned steps including resolving references using reference

data to produce result data. Execution inherently involves specifying memory locations

otherwise the processor would not be able to obtain required data.).

Tock further utilizes the general concept of an index. See FIG. 6 elements 636

which index field block entries in element 614. Tock does not expressly disclose *an*

index to a resolved class related reference data, a second reference data that comprises

an index to a resolved field related reference data, or a *link to another code entry*.

However, in an analogous environment, BOTI teaches that an index to resolved

class related reference data provides access to class data. See page 5 lines 25-26:

> The index to a class table is attached to the class data in the aforesaid class table for the
> class which contains the aforesaid variable.

BOTI further teaches that a link to another code entry provides a means for data

resolution. See page 2 lines 27-30:

> By following the links between the various sets of code data in order, starting from the
> first entry, we can obtain a character string representing the name of the class, the
> variable, and the type of variable that were described to the source program

Also, in an analogous environment, Patel teaches that data in a constant pool can be used

as an index to a resolved field related reference data. See column 7 line 64 – column 8

line 1:

> If the bytecode does reference a constant pool, in step 124, data is obtained from the
> specific data structure, i.e. the constant pool, including data from a resolution data field.
> The data from the resolution data field is used as an index to a jump table.

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to: use BOTI's teaching of class indexes in order to provide access to class

information; use BOTI's teaching of links to code entries in order to provide fully

resolvable data; and use Patel's index with Tock's second reference data in order to use

an index to access data stored in a table.

As per claim 2, Tock discloses:

An information processing device provided with a program written in an

interpreter language – See column 2 lines 53-55:

> An **application** developed in the **Java programming language** is executed on such a
> client **computer**.

comprising:

a storing means to store result data of a resolved reference linking to said

program in a code data entry ~~representing~~ *<specified by> an instruction to be executed*

when the program is executed, wherein reference data used to obtain the result data

comprises a first and second reference data, at least one of said reference data to specify

a location in a memory to be accessed – See column 5 lines 56-60 and 65-67:

> The object module is then transmitted to the linker 136 which **generates a memory**
> **layout** for the classes in the application. Once the memory layout is determined, the
> linker 136 **resolves all symbolic references** and replaces them with **direct addresses.**
> ...
> The output from the linker 136 is a preloadable **executable module** 306 containing the
> methods and data for these two address spaces.

Further, see FIG. 3 element 306: ROM/RAM; <u>Comment</u>: A code entry specified by an

instruction that previously held a symbolic reference would contain result data of a

resolved reference. The executable module contains the code entry and result data for

specifying memory locations, and is stored as is shown in FIG. 3, in ROM and RAM.);

wherein said first reference data is determined based on class data and said second

reference data comprises an index value for one or more field data, – See column 7 lines

16-17:

> ...an array of one or more pointers 636, **each pointer referencing a field block;**

Pointer 636 serves as an index into the field table. Further, see column 7 lines 45-52:

> **A first entry contains the name of the class** and the name of the superclass 502. These
> names are stored as string constants and the first entry contains pointers to the locations

of these strings in the constant pool. **The next entry pertains to the fields** or instance variables. A header 504 is used to denote the number of fields in the constant pool. The various fields 506 follow the header.

a program executing means to execute said program, which specifies said location in said memory to be accessed based on said result data of said resolved reference linking to said program through said reference data, when said program is executed which requires access to said result data – Column 2 lines 53-55 cited above describes a program executing means.

Tock further utilizes the general concept of an index. See FIG. 6 elements 636 which index field block entries in element 614. Tock does not expressly disclose where the second reference data comprises *an index to a resolved field related reference data.* However, in an analogous environment, [US 6,338,130 B1] teaches that data in a constant pool can be used as an index to a resolved field related reference data. See column 7 line 64 – column 8 line 1:

> If the bytecode does reference a constant pool, in step 124, data is obtained from the specific data structure, i.e. the constant pool, including data from a resolution data field. The data from the resolution data field is used as an index to a jump table.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Patel's index with Tock's second reference data. One of ordinary skill would have been motivated to use an index to access data stored in a table. All further limitations have been addressed in the above rejection of claim 1.

As per claim 3, the above rejection of claim 2 is incorporated. Tock further discloses:

An information processing device according to claim 2, wherein said program comprises

an object program in byte code and data which represent the content of reference data linked to said program (column 3 lines 46-49; column 4 lines 25-29; column 5 lines 65-67), *and*

said program executing means stores said result data of said resolved reference in a link reference field provided for linking to said object program (column 9 lines 7-12).

As per claim 4, the above rejection of claim 3 is incorporated. Tock further discloses:

An information processing device according to claim 3, wherein

said link information provided for linking to said object program contains code data of a number of fixed lengths (column 6 lines 22-26), *and*

said result data of said resolved reference is stored in a predetermined location determined by head code data (column 7 lines 47-49).

As per claim 5, the above rejection of claim 4 is incorporated. Tock further discloses:

An information processing device according to claim 4, wherein said object program and said link information are read out of a ROM at the time of executing said program (column 3 lines 19-20).

In regard to claim 11, the above rejection of claim 1 is incorporated. Tock further discloses: *wherein said reference data further comprises a third reference data* (FIG. 6 element 634).

In regard to claim 12, the above rejection of claim 11 is incorporated. All further limitations have been addressed in the above rejection of claim 11.

In regard to claim 13, the above rejection of claim 12 is incorporated. All further limitations have been addressed in the above rejection of claim 11.

In regard to claim 15, the above rejection of claim 2 is incorporated. All further limitations have been addressed in the above rejection of claim 6.

In regard to claim 16, the above rejection of claim 2 is incorporated. Tock further discloses: *a third reference data, said third reference data comprising a first data structure for storing character data and a second data structure for storing data indicating a position within said first data structure for storing character data* (FIG. 6 elements 618 and 620).

As per claim 17, the above rejection of claim 2. All further limitations have been addressed in the above rejection of claim 11.

As per claim 18, the above rejection of claim 3 is incorporated. All further

limitations have been addressed in the above rejection of claim 4.

As per claim 19, the above rejection of claim 3 is incorporated. All further

limitations have been addressed in the above rejection of claim 4.

Conclusion

9.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from

the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the

mailing date of this final action and the advisory action is not mailed until after the end of the

THREE-MONTH shortened statutory period, then the shortened statutory period will expire on

the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

calculated from the mailing date of the advisory action. In no event, however, will the statutory

period for reply expire later than SIX MONTHS from the date of this final action.

10.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to J. Derek Rutten whose telephone number is (571) 272-3703. The

examiner can normally be reached on T-F 6:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Tuan Q. Dam can be reached on (571) 272-3695. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jdr

TUAN DAM
SUPERVISORY PATENT EXAMINER